REMARKS

The above-identified Application has been carefully reviewed with the Office Action of December 23, 2009, the Examiner's comments, and the prior art references cited therein in mind. In response thereto, Applicant submits the following arguments in support of patentability. Favorable reconsideration is hereby respectfully requested.

Claim Objections

Claim 8 is objected to because of informalities. Claim 8 has been amended. The detailed amendments in the claim 8 are as follows:

- Delete "dynamic" in line 2 of claim 8.

Accordingly, the applicants respectfully request this objection be withdrawn.

Claim Rejections - 35 USC§103

Claims 1-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Feinberg et al (2004/0001579) in view of Campanella et al (2001/0017849). The Office states that "regarding claim 1, Feinberg discloses a method for realizing dynamic adjustment of data bandwidth in transmission equipment (paragraph 0019), comprising adding, by a device (50) for realizing dynamic adjustment of data bandwidth in transmission equipment, a control channel (see signaling in paragraphs 0279, 0289, 0290, 0424) in a trunk link of the transmission equipment. Feinberg does not specifically disclose the control channel is for describing occupancy on time slots by a current service. However, Campanella discloses a time slot control channel with time slot control word performing this feature (paragraphs 0084, 0085, 0147, and 0149). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the time slot control channel as taught by Campanella in the system of Feinberg in order to control the allocation of time slots..."

The Applicants respectfully disagree for the following reasons.

For a proper rejection of a claim under 35 U.S.C. §103, the cited combination of references must disclose, teach, or suggest all elements/features of the claim at issue. *See, e.g., In re Dow Chemical*, 5 U.S.P.Q.2d 1529, 1531 (Fed. Cir. 1988) and *In re Keller*, 208 U.S.P.Q.2d 871, 881 (C.C.P.A. 1981) (emphasis added).

Claim 1:

Claim 1 provides a method for realizing dynamic adjustment of data bandwidth in transmission equipment, comprising adding, by a device for realizing dynamic adjustment of data bandwidth in transmission equipment, a control channel in a trunk link of the transmission equipment for describing occupancy on time slots by a current service.

With reference to Feinberg, it discloses a method for operating an integrated communications system providing voice and data communications to a plurality of users and simulating a key system, wherein a plurality of telephone lines (subscriber lines) are trunked to the integrated communications system providing voice and data communications (Abstract and Figure 2 of Feinberg), which actually means to add an access switch in the user side.

There is at least the following distinguishing technical feature between claim 1 of the present invention and Feinberg et al:

The control channel in claim 1 of this application is for describing occupancy on time slots by a current service.

With the above distinguishing technical feature, claim 1 of this application provides a method for realizing dynamic adjustment of data bandwidth in transmission equipment, to dynamically adjust data bandwidth and effectively use trunk bandwidth resources (Lines 6-10 Page 2 of the description of this application). Feinberg neither discloses the above distinguishing technical features of claim 1 of this application, nor solves the technical problem to be solved in the present application.

Campanella fails to cure these deficiencies of Feinberg. In particular, Campanella discloses a time slot control channel (TMCC) containing information identifying the program providers carried in the TDM frame and in which locations of the 96 PRCs each program provider's channel can be found (paragraph 0084 of Campanella), and time slot control word comprising at least one field selected from the group consisting of a broadcast channel identifier type field, a broadcast channel identifier number field, a last prime rate channel flag, a format identifier field, and a broadcast audience field (table 4, claim23 of Campanella). It can be seen that the time slot control word disclosed by Campanella is for describing the physical attribute such as broadcast channel identifier, last prime rate channel flag, format identifier, and broadcast audience of the TDM time slots, and further to control the recovery of prime rate channels corresponding to a selected one of broadcast channels by at least one of said remote receivers (claim 23 of Campanella).

Therefore it can be seen that in Campanella, a time slot control channel with time slot control word is for describing the physical attribute of the TDM time slots so as to identify the

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channels and control the recovery of prime rate channels. In contrast, the control channel described in claim 1 of this application is for describing **occupancy** on time slots **by a current service** so as to dynamically adjust the data bandwidth. Thus the function and purpose of the control channel in claim 1 of this application is different from that of the time slot control channel disclosed by Campanella. Campanella neither discloses the above distinguishing technical feature, nor provides any relative teachings of applying the above distinguishing technical feature in Feinberg to solve the technical problem to be solved in this application.

Thus it is non-obvious to one of ordinary skill in the art at the time of the instant application to incorporate the teachings of Campanella into Feinberg.

The above technical feature is not the common technical means in the art.

Therefore to one of ordinary skill in the art, the subject matter in claim 1 is non-obvious.

Therefore, claim 1 is in conformity with the provisions of 35 U. S. C. 103(a) and should be allowed.

Claims 2-5 and 10:

Dependent claims 2-5 and 10 depend on independent claim 1 directly or indirectly, and are thus allowable for at least the same reasons as claim 1.

Claim 6:

Regarding claim 6, the Office Action opines that "Feinberg discloses a device for realizing dynamic adjustment of data bandwidth in transmission equipment, comprising: a control word process circuit, a time slot distribution circuit and a CPU interface circuit, wherein the control word process circuit is designed to complete extraction and insertion of control information in control channel of EIIT1 link; the time slot distribution circuit is designed to complete separating voice time slots from Ethernet data time slots, and rebuilding data. Feinberg does not specifically disclose controlling on time slot distribution. However, Campanella discloses a time slot control channel with controlling time slot distribution (paragraphs 0084, 0085, 0147, and 0149). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to use the time slot control channel as taught by Campanella in the system of Feinberg in order to control the allocation of time slots." The Applicants respectfully disagree.

Claim 6 provides a device for realizing dynamic adjustment of data bandwidth in transmission equipment, comprising: a control word process circuit, a time slot distribution circuit and a CPU interface circuit, wherein the control word process circuit is designed to

complete extraction and insertion of control information in control channel of E1/T1 link; the time slot distribution circuit is designed to complete separating voice time slots from Ethernet data time slots, and rebuilding data; the CPU interface circuit implements controlling on time slot distribution.

With reference to Feinberg, it discloses a method for operating an integrated communications system providing voice and data communications to a plurality of users and simulating a key system, wherein a plurality of telephone lines (subscriber lines) are trunked to the integrated communications system providing voice and data communications (Abstract and Figure 2 of Feinberg), which actually means to add an access switch in the user side.

There are at least the following distinguishing technical features between claim 6 of this application and Feinberg et al:

a) The control word process circuit in claim 6 of this application is designed to complete extraction and insertion of control information in control channel of E1/T1 link.

The device for realizing dynamic adjustment of data bandwidth in transmission equipment provided by claim 6 of the present invention comprises "a control word process circuit", and "the control word process circuit is designed to complete extraction and insertion of control information in control channel of E1/T1 link". The cited portions (paragraphs 0019, 0081, 0279, 0289, 0290, 0424 and figures 3, 3A, 4) of Feinberg, however, make no reference to such a control word process circuit.

Firstly, Feinberg does **not** disclose any control channel of E1/T1 link. The D channel disclosed by Feinberg is **not** equivalent to the control channel of E1/T1 link provided by the present invention. Furthermore, Feinberg only discloses a D or similar control signaling channel typically is used to provide appropriate signaling information for the voice or B channels (lines 6-8 of paragraph 0289). But the system disclosed by Feinberg *neither* involves any concept of extracting and inserting of the control signaling information in the D channel, nor discloses any hardware designed to complete extraction and insertion of control information in control channel of E1/T1 link. Thus it is **impossible** for Feinberg to disclose a control word process circuit which is designed to complete extraction and insertion of the control signaling information in control channel of E1/T1 link.

b) The time slot distribution circuit in claim 6 of this application is designed to complete separating voice time slots from Ethernet data time slots, and rebuilding data. However, Feinberg does not disclose or suggest this technical feature.

The device for realizing dynamic adjustment of data bandwidth in transmission equipment provided by claim 6 of the present invention comprises "a time slot distribution

circuit", and "the time slot distribution circuit is designed to complete separating voice time slots from Ethernet data time slots, and rebuilding data". The cited portions (paragraphs 0019, 0081, 0279, 0289, 0290, 0424 and figures 3, 3A, 4) of Feinberg, however, make no reference to such a time slot distribution circuit.

From paragraph 0424 of Feinberg, it can be seen that in Feinberg, it is the data channels (but **not** data **time slots**) being **split off** (but **not separated** from voice **time slots**) and sent to external router. Additionally, from figure 2 of Feinberg, it can be clearly seen that there are Digital Trunk and POTS Trunk in Feinberg, which means that the data service and the voice service occupy dedicated telephone lines respectively, and the telephone lines occupied by the data service can not be distributed to the voice service. Furthermore, Feinberg does **not** give any information about "time slot" or "time slot distribution". Actually in Feinberg, since the data service and the voice service occupy dedicated **telephone lines (but not time slots)**, the data service and the voice service in different telephone lines have already been separated from each other and there is no need for the system of Feinberg to comprise a circuit to complete separating voice services from data services and rebuilding data. Thus it is **impossible** for Feinberg to disclose a time slot distribution circuit which is designed to complete separating voice time slots from Ethernet data time slots, and rebuilding data.

c) The CPU interface circuit in claim 6 of this application implements controlling on time slot distribution. However, Feinberg does not disclose or suggest this technical feature. Referring to Feinberg, no **CPU** interface **circuit** is disclosed.

With the above distinguishing technical features, claim 6 in claim 6 of this application provides a device for realizing dynamic adjustment of data bandwidth in transmission equipment, to dynamically control the time slot distribution so as to adjust data bandwidth and effectively use trunk bandwidth resources. Feinberg neither discloses the above distinguishing technical features of claim 6 of this application, nor solves the technical problem to be solved in the present application.

Campanella fails to cure these deficiencies of Feinberg. In particular, Campanella does not disclose "controlling on time slot distribution". The time slot control channel (TMCC) disclosed by Campanella contains information identifying the program providers carried in the TDM frame and in which locations of the 96 PRCs each program provider's channel can be found (paragraph 0084 of Campanella). The time slot control word disclosed by Campanella comprises at least one field selected from the group consisting of a broadcast channel identifier type field, a broadcast channel identifier number field, a last prime rate channel flag, a format identifier field, and a broadcast audience field (table 4, claim23). It can be seen that the time

slot control word disclosed by Campanella is just for <u>describing the physical attribute</u> such as broadcast channel identifier, last prime rate channel flag, format identifier, and broadcast audience <u>of the TDM time slots</u>, and further to **control the recovery of prime rate channels** corresponding to a selected one of broadcast channels by at least one of said remote receivers (claim 23 of Campanella), rather than to control on the time slot distribution.

Therefore it can be seen that the time slot control channel in Campanella is just for <u>describing the physical attribute of the TDM time slots so as to identify the channels and</u> ***control the recovery of prime rate channels***, but not for controlling on time slot distribution.

Campanella neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features in Feinberg to solve the technical problem to be solved in this application.

Thus it is non-obvious to one of ordinary skill in the art at the time of the instant application to incorporate the teachings of Campanella into Feinberg.

The above technical feature is not the common technical means in the art.

Therefore to one of ordinary skill in the art, the subject matter in claim 6 is non-obvious.

Therefore, claim 6 is in conformity with the provisions of 35 U. S. C. 103(a) and should be allowed.

Claims 7-8:

Dependent claims 7-8 depend on independent claim 6, and are thus allowable for at least the same reasons as claim 6.

Claim 9:

Regarding claim 9, the Office Action opines that "Feinberg discloses a method for realizing dynamic adjustment of data bandwidth in transmission equipment, comprising: releasing the time slots from data service by the time slot distribution circuit; and distributing to the voice service; informing the time slot distribution circuit by CPU of the time slot having been released by the voice service after voice call finishes; and distributing the time slots to Ethernet data service by the time slot distribution circuit, whereby dynamic adjustment of Ethernet data service is implemented (see dynamic allocation and re-allocation of bandwidth for voice and data communications in paragraphs 0019, 0081, 0279, 0289, 0290, 0424 and figures 3,3A, 4). Feinberg does not specifically disclose informing a time slot distribution circuit by CPU of time slots to be occupied by a voice service as voice call begins. However, Campanella discloses this feature (paragraphs 0084, 0085, 0147, and 0149). Therefore, it would have been obvious

to a person of ordinary skill in the art at the time the invention was made to use the time slot control channel as taught by Campanella in the system of Feinberg in order to control the allocation of time slots." The Applicants respectfully disagree.

Claim 9 provides a method for realizing dynamic adjustment of data bandwidth in transmission equipment, comprising:

informing a time slot distribution circuit by CPU of time slots to be occupied by a voice service as voice call begins when a current service is multiplexed to a direction of E1/T1 link;

releasing the time slots from data service by the time slot distribution circuit; and distributing to the voice service;

informing the time slot distribution circuit by the CPU of the time slot having been released by the voice service after voice call finishes; and

distributing the time slots to Ethernet data service by the time slot distribution circuit, whereby dynamic adjustment of Ethernet data service is implemented.

With reference to Feinberg, it discloses a method for operating an integrated communications system providing voice and data communications to a plurality of users and simulating a key system, wherein a plurality of telephone lines (subscriber lines) are trunked to the integrated communications system providing voice and data communications (Abstract and Figure 2 of Feinberg), which actually means to add an access switch in the user side.

There are at least the following distinguishing technical features between claim 9 of this application and Feinberg:

a) Feinberg does not disclose "informing a time slot distribution circuit by CPU of time slots to be occupied by a voice service as voice call begins when a current service is multiplexed to a direction of E1/T1 link", which is defined in claim 9 of this application.

b) Feinberg does not disclose "releasing the time slots from data service by the time slot distribution circuit; and distributing to the voice service", which is defined in claim 9 of this application.

In Feinberg, the data service and the voice service occupy different telephone lines (but **not time slots**), and the telephone lines occupied by the data service can **not** be distributed to the voice service, therefore it is **impossible** for Feinberg to release the time slots from data service, and distribute to the voice service. Additionally, Feinberg does not give any information about time slot distribution circuit. Therefore Feinberg does **not** disclose the feature of "releasing the time slots from data service by the time slot distribution circuit; and distributing to the voice service" provided by claim 9 of the present invention.

c) Feinberg does not disclose "informing the time slot distribution circuit by the CPU of

the time slot having been released by the voice service after voice call finishes", which is defined in claim 9 of this application.

As mentioned above, Feinberg does **not** give any information about **time slot** distribution **circuit**. Additionally, Feinberg does **not** give any concept of **what actions** CPU takes after voice call finishes, so it is **impossible** for Feinberg to disclose "informing the time slot distribution circuit by the CPU of the time slot having been released by the voice service after voice call finishes".

d) Feinberg does not disclose "distributing the time slots to Ethernet data service by the time slot distribution circuit", which is defined in claim 9 of this application.

As mentioned above, Feinberg neither gives any information about time slot distribution circuit, nor discloses any **hardware** for distributing the time slots to Ethernet data service. In Feinberg, the telephone lines occupied by the voice service can **not** be distributed to the data service after voice call finishes. Therefore Feinberg does **not** disclose the feature of "distributing the time slots to Ethernet data service by the time slot distribution circuit" provided by claim 9 of the present invention.

With the above distinguishing technical features, claim 9 provides a method for realizing dynamic adjustment of data bandwidth in transmission equipment, to dynamically control the time slot distribution so as to adjust data bandwidth and effectively use trunk bandwidth resources. Feinberg neither discloses the above distinguishing technical features of claim 9 of this application, nor solves the technical problem to be solved in the present application.

Campanella fails to cure these deficiencies of Feinberg. In particular, Campanella does not disclose "informing a time slot distribution circuit by CPU of time slots to be occupied by a voice service as voice call begins". As analyzed above, the time slot control channel disclosed by Campanella is just for describing the physical attribute of the TDM time slots so as to identify the channels and **control the recovery of prime rate channels**, but **not** for controlling on time slot distribution. Thus Campanella does not disclose "informing a time slot distribution circuit by CPU of time slots to be occupied by a voice service as voice call begins". Campanella neither discloses the above distinguishing technical features, nor provides any relative teachings of applying the above distinguishing technical features in Feinberg to solve the technical problem to be solved in this application.

Thus it is non-obvious to one of ordinary skill in the art at the time of the instant application to incorporate the teachings of Campanella into Feinberg.

The above technical feature is not the common technical means in the art.

Therefore to one of ordinary skill in the art, the subject matter in claim 9 is non-obvious.

Therefore, claim 9 is in conformity with the provisions of 35 U. S. C. 103(a) and should be allowed.

CONCLUSION

With the amendments presented herein, it is believed that all the claims remaining in the Application are in condition for allowance. Early and favorable action in this regarding is hereby respectfully requested. Should there be any minor informalities remaining, the Examiner is respectfully requested to call the undersigned attorney so that this case may be passed to issue at an early date.

Respectfully submitted,

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